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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,605	03/29/2001	Masayuki Takahashi	55,731 (70904)	5076

7590

02/05/2003

Dike, Bronstein, Roberts & Cushman LLP
130 Water Street
Boston, MA 02109

EXAMINER

HARRINGTON, ALICIA M

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 02/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



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Office Action Summary

Application No.

09/821,605

Applicant(s)

TAKAHASHI ET AL.

Examiner

Alicia M Harrington

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4 and 6-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 7/30/02 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The indicated allowability subject matter in previous claims 5-7 which is now incorporated into independent claims 1 and 11 is withdrawn in view of the newly discovered reference(s) to Fowler (US 6,459,078). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,2,4,6-9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potts et al (US 5,332,893) in view of Fowler (6,459,078).

Regarding claims 1 and 11, Potts discloses a two-dimensional image sensor (see figure 2) with a readout circuit comprising (see figure 3 and col. 6, lines 14-46) a charge sensitive amplifier (51), a low pass filter (53), a voltage amplifier (55) where the voltage amplifier follows the low pass filter. However, Potts fails to specifically disclose the low pass filter and voltage amplifier share a common element. Although, it is well known in the prior art, as taught by Fowler.

Fowler discloses a readout circuit where the readout circuit in figures 2-3 have a low pass filter and amplifier where they share parallel capacitors and switches (col. 4, lines 44-54). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Potts, as taught by Fowler, since prior art clearly teaches common utilization of parts.

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Regarding claim 2, Potts and Fowler disclose a low pass filter and voltage amplifier that shares a common circuit and a time constant corresponds to the time rate of change of the device that depends upon the input. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that as the amplification voltage raises the time constant increases.

Regarding claim 4, Potts discloses where voltage amplifier circuit includes an operation amplifier (72) having an inverted input terminal to which the capacitor and low pass filter circuit includes the resistor and the capacitor is connected in series with the resistor.

Regarding claim 6, Fowler discloses the sequential (see col. 4, lines 15-20) switching of switches 45 and 49 to control the capacitors. The amplification factor of the circuit is determined based on the amplifier configuration. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made the amplification of the signal can be 1 since the amplification of a signal depends on the circuit configuration which is within routine skill in the art.

Regarding claim 7, Fowler discloses the sequential (see col. 4, lines 15-20) switching of switches 45 and 49 to control the capacitors.

Regarding claim 8, Potts discloses the voltage amplifier where the feedback capacitor (76) is provided between the inverted input terminal and the output terminal.

Regarding claim 9, Potts discloses a reset switch (78).

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Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potts in view of Fowler as applied to claim 1 above, and further in view of Applicants' admitted prior art figure 8 (description in background of invention, page 13).

Regarding claim 10, Potts disclose the signal output from the voltage amplifier can be multiplexed. However, Potts and Fowler fail to disclose the claimed circuit configuration. Although, applicants admitted prior art discloses the claimed readout circuit configure in figure 8. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Potts and the admitted prior art circuit is designed to cut unwanted frequencies.

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potts in view of Fowler as applied to claim 11 above, and further in view of Ando (JP 361070872A).

Regarding claims 12-13, Potts discloses the imaging device has a photoconductive layer (col. 2, lines 25-40, col. 7, lines 50-67) and the electrodes (see figure 2) receive charges and output them to detection circuit where the charges are interpreted as pixel of an image (col. 5, lines 30-60). Fowler has a photoelectric converter with capacitor. However, Potts and Fowler fail to specifically disclose the photoelectric conversion circuit is configured to hold the charge while the charge detection reads the charge for the photoelectric converter.

Ando discloses a solid state imager where photodiodes are used to collect charges where the photodiode retains the charge until the vertical switch is activated (see constitution and 3) to allow charge to read to the detection circuit for amplifying, sampling and holding, low pass filtering and amplifying again to create an output image signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Potts and

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Fowler since it provides it is a known photoelectric conversion circuit configuration as early as 1986 and Andos' circuit suppresses blooming.

Regarding claims 14-15, Potts discloses the data lines, which sends charges to the readout circuit (see figure 2). However, Potts and Fowler fail to specifically disclose the claimed circuit configuration implemented to hold the charge while the charge detection reads the charge for the photoelectric converter. However, Ando discloses a solid state imager where photodiodes are used to collect charges where the photodiode retains the charge until the vertical switch is activated (see constitution and figures 1 and 3) by vertical register/scanner (6) to allow charge to read to the detection circuit for amplifying, sampling and holding, low pass filtering and amplifying again to create an output image signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Potts and Fowler, since it is a known photoelectric conversion circuit configuration as early as 1986 and Andos' circuit suppresses blooming.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M Harrington whose telephone number is 703 308 9295.


The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 703 308 4883. The fax phone numbers for the organization where this application or proceeding is assigned are 703 308 7724 for regular communications and 703 308 7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

Alicia M Harrington
Examiner
Art Unit 2873

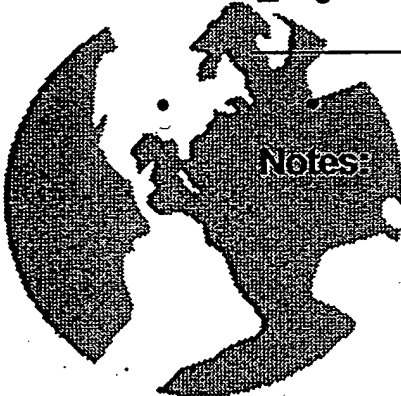
AMH 
October 17, 2002


Georgia Epps
Supervisory Patent Examiner
Technology Center 2800

FACSIMILE TRANSMITTAL

To: D. Collins Fax: 1-888-325-9129
From: A. Harrington Date: 11/14/03
Re: Office Action Pages: (Including Cover Sheet) 8

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